再生式剎車系統速度控制之分析及設計

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摘 要

本文提出一再生式剎車系統速度控制之硬體架構，首先建構出讓馬達與電瓶間能夠做充、放電轉換 之系統，使電瓶在放電模式時，馬達獲得能量供應加速運轉，而在充電模式時，馬達變成發電機將動 能轉換成電能回充至電瓶，使馬達減速，藉由電瓶在充、放電所佔時間不同達到馬達速度控制之目的 ，而當系統作能量回充時，由於將馬達的能量回存，可減少能量損耗。 在控制器的設計方面，本文設計PI與模糊等兩種控制器以做轉速控制，並比較及探討兩者之間的優 劣，而由實驗結果顯示，於跟隨不同轉速波形的情況下，本文所提之模糊控制器具有比PI控制器更寬 廣的操作範圍與較佳的效能。

關鍵詞 : 再生剎車、模糊控制器、轉速控制

目錄

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